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The climate, though warm, is perfectly salubrious. The range of the thermometer, in the hottest season, is from 78° to 86° , and in the coldest, from 72° to 81° . The general winds are from south to east, subject to interruptions from the vicinity of the north-west monsoon, which lasts from January to March. No two seasons have been as yet alike since the formation of the settlement, but until the present they have never had more than an occasional squall of a few hours continuance from the northward or westward.

The fresh water, obtained from wells dug on the isles, is good, wholesome, and abundant. The anchorage is safe—the narrow opening between the reefs off Horsburgh and Direction isles not affording ingress to any heavy sea, as was experienced during a late northerly gale. The channel leading into the inner anchorages has only three fathoms and three quarters at low water, and is tortuous and narrow for nearly a mile. No vessel drawing more than twelve feet water may safely sail in; but ships requiring heaving down, &c., may be warped for that purpose into the basin inside of Direction island. There can be, however, no occasion for entering the port beyond the outer anchorage, except for safety in time of war. The intricacy of the entrance is then an advantage.

High water is at about half-past four o'clock in the anchorage, on full and change. When the sun is near the equator, the two tides are nearly equal, and rise from three and a half to four feet. When the sun is near the southern tropic, his zenith, or evening, tide rises to from five to five and a half feet, and the morning tide to one and a half and three feet. The contrary happens when he is near the northern solstice.

VIII.—*Notes respecting the Isthmus of Panama.* Communicated by J. A. Lloyd, Esq. Extracts from them read 28th of February, and 14th of March, 1831.

[IN November, 1827, Mr. Lloyd, who had served for some time previously on General Bolivar's personal staff, received from him a special commission to survey the Isthmus of Panama, in order to ascertain the most eligible line of communication across it, whether by road or canal. And the result of his operations, in so far as they regarded the level of the respective seas, and the elevation of the intervening Isthmus, has been already published in the Philosophical Transactions for 1830. p. 59.—The following supplementary information seems however still interesting; and is extracted from Mr. Lloyd's entire notes, communicated by him to the Royal Geographical Society, before his recent departure for the Mauritius.

His occupations while at home having put it out of his power to

revise his materials, it has been thought expedient to change their form from the first to the third person, the more distinctly to relieve him from the responsibility of their selection and arrangement. But, where possible, his own words have been preserved.]

The Isthmus of Panamà, or Darien, may be considered as extending from the meridian of 77° to that of 81° west of Greenwich; with a breadth swelling out at the two extremities, and not less than thirty miles, even where narrowest, opposite the city of Panamà. Its whole extent is not, however, comprised within the Spanish American province; the Mandingo Indians to the N.E. maintaining a fierce and often turbulent independence, to the present day.

I. PHYSICAL GEOGRAPHY.

The Cordillera, or great chain of mountains, which for the most part traverses the whole continent of America, is twice broken within the above limits.—

The northern Cordillera exhibits the first indication of depression in Nicaragua; but again rears itself, for a time, in the province of Veragua, and is there crowned with a very fine plain, called La Mesa (the table). In the eastern part of the province it breaks into detached mountains of considerable height, and of the most abrupt and rugged formation;—thence, proceeding still to the eastward, innumerable sugar-loaf mountains appear, not above three or four hundred feet high, with their bases surrounded by plains and savannahs;—and finally, about Chagres on the one side, and Chorrera on the other; these also disappear for a few miles, and the country becomes almost uninterruptedly low and flat. Presently, however, the sugar-loaf mountains again thicken, and becoming connected, form a small cordillera, running from about opposite Porto-Bello, to the Bay of Mandingo; where is the second break. The land then continues low through the province of Darien and Choco; and is most abundant in rivers, those on the north side tending to the Gulph of Uraba or Darien, and those on the south, to that of St. Miguel; beyond which point, the cordillera again raises itself on an extended scale, and enters South America.

The general direction of the mountains in the vicinity of Panamà is north-east and south-west; elsewhere they vary, maintaining some relation to the line of coast, though not always parallel to it. Near Panamà, they do not exceed one thousand or eleven hundred feet in height; east of Porto-Bello they are greatly higher; and are generally covered with thick and almost impenetrable wood, growing on an extraordinarily fruitful soil of great depth.

The prevailing rock is limestone, skirted on the north side with coral rock, on the south with indurated clay. The coral rock is

impregnated with a gelatinous matter, which gives it the property of adhering with great firmness to whatever, under water, it is placed against. It is close in its texture, and becomes very hard on long exposure to the air; but when first dug out is not more difficult to work than chalk. The indurated clay-stone, along the Panamà shore, is also an excellent building material; becoming, though soft at first, hard on exposure. For facility of working, it is generally obtained, where softest, below high water mark.

Besides limestone, are found, in the interior, flint, chalcedony, jasper, iron-stone; and near Gatun, on the river Chagres, a very fine fire-stone, of great use in the construction of kilns, furnaces, &c. Clay and loam earth for bricks are also abundant, and sand to mix with lime in mortar.—‘In a word,’ says Mr. Lloyd, ‘perhaps no part of the world possesses a greater variety of building materials, nor more facility in procuring them, than does the Isthmus of Panamà.’ In the precious metals, however, the province is poor. In Panamà proper, only two mines are worked, Santa Rita and Pequeni, both for gold, but their produce is insignificant. They are in the mountains near Porto-Bello. In Veragua, including Choco, a considerable quantity of gold is obtained by washing, and is reckoned very pure: copper and iron are abundant; and tin and mercury are said to have been found. But very little capital is embarked in the respective works; and the washings, in particular, are chiefly in the hands either of a few proprietors of slaves, who thus employ them, or of free Indians who select what they consider favourable situations, occupy them without paying any rent or acknowledgment, employ one portion of the year in collecting the alluvium from the bottom of the rivers and piling it up in heaps, a second in washing it, and the remainder in selling the produce, and wasting it in finery and excess. The total amount is thus comparatively small, and uncertain from year to year.

The vegetable productions of the Isthmus are most luxuriant; and in the vigour and varieties of its woods it challenges competition, in Mr. Lloyd’s opinion, with any other part of the world. The following is the list found among his notes, and he has also deposited with the Society a collection of specimens of the respective woods.

Amarillo.—A yellow wood; hard, tough, fine grained, and very durable; has no heart; is in great quantities, used for furniture, house-building, &c.,—*excellent*.

Amarillo de fruta.—Bearing a fruit; is yellowish white, with a long grain; tough and rather hard; is very common; grows to the size of not more than two feet diameter; the heart is of the same colour; is much used in house-building.

Amarillo carbonero.—A white-brown wood, with large heart, close grained, and hard; is very tough, and grows to the size of one foot or one foot six inches diameter; is used for houses and building; not very common.

Amarillo colorado.—

Amarillo curabasuel.—A green wood; hard and brittle; grows to a very large size, and is common; used for building, and making very large tables.

Almasigo.—White; something like white deal; soft, not tough; three feet diameter; very common. There is a resin comes from this tree when pierced, much used in the country for sores; has a very thick bark.

Alcabou.—Brownish, coarse, shiny grain; grows from six inches to two feet diameter, and common; has no heart; good for staves.

Algarobo.—One of the most excellent woods known; very hard and tough; reddish brown, with streaks; grows to a large size, and common; used for marine gun carriages, &c.; called, in Jamaica, *mogo*.

Aguacate.—Whitish; coarse-grained, hard, and tough; common; grows to the size of two feet.

Ajisillo.—

Aromo.—A soft, long-grained, shiny, whitish wood; very light and tough; grows to a good size, and common.

Algodon.—Cotton tree; white, spongy, light, close-grained, and brittle; very common.

Balsa.—Literally, ‘raft;’ light, and very soft; the lightest of all woods—as light nearly as cork; used as rafts, and for polishing metals; grows to not more than one foot diameter.

Cocobolo amarillo.—Like rose-wood; very tough and hard; seldom grows to more than one foot diameter, but occasionally larger; has a fragrant smell, with dark brown streaks, I think something like zebra-wood; is very common in the high dry lands.

Cocobolo prieto.—A very tough, hard wood, of a beautiful figured grain (I think like rose-wood); grows to the size of about three feet diameter, but generally smaller; is very plentiful; has a very fragrant smell when green; used more for carpentry than cabinet-work.

Cacique, or king of woods.—One of the finest and most durable woods of South America; whitish yellow; hard, tough, and long-grained; grows to a large size, is common, and much used for building in the ground or water.

Conejo.—Hard, fine-grained, same as box-wood; grows to a small size, and is scarce.

Conejo colorado.—Yellowish; very close, fine grain, like holly, but harder; grows to a good size.

Cedro cevollo.—A class nearly the same as *cedro real*.

Cedro espinoso, or prickly cedar.—Grows to an immense size, but not

quite so much prized by the natives as cedar real; has a long spotted grain; is softish, brittle, and covered with prickles on the outside.

Cedro papallo.—One of the many species of cedar.

Cedro real amargo.—The finest cedar of the country; of a strong fragrant smell, and long grain; used for many purposes in carpentry, and boat and canoe-building; grows to five or six feet diameter, and is very common.

Caoba.—Bastard mahogany; not very common in the vicinity of Panamà, but brought, in immense quantities, in canoes, from the coast, where it is very abundant, and grows to an immense size.

Corotu.—Like elm; grows to a large size; used for canoes.

Corotu prieto.—Soft and porous, like walnut; long-grained; grows to an enormous size; is generally used next in preference to cedar for the largest bongs and canoes, and is very abundant in all parts.

Carano.—Close-grained, like holly; light brownish yellow; tough; grows to a small size, and is common; is most excellent for scales.

Carati.—Hard, close grain; brownish, tough, heavy; grows to the size of one foot six inches diameter, and is very common.

Calmitillo.—Like birch; grows to about one foot six inches diameter, and is very common.

Ciruela.—Very white, long grain, soft, spongy, not tough, small size, and scarce; the bark used medicinally as an astringent.

Ciromo.

Ciquarri.—A fine wood; hardish and tough; something like bastard mahogany, but a more shiny grain.

Espino di mata.—Like birch; dirty white, long-grained, soft, not tough; grows to a small size, and is scarce.

Espino colorado.—Like walnut-tree; a dark wood, nearly the colour of cedar, but much harder, and a close grain; grows to about three feet diameter; beautiful wood for boat-building.

Espabé mulato.—A softish, long-grained, close, tough, very knotty and refractory wood, but very lasting; grows to an immense size, and used universally for flooring and wainscoting; is very common.

Espabé prieto.—One of the common woods of the country; I think something like elm; grows to the size of five feet diameter, and is used in every branch of house-building; it has rather a rough grain to work.

Frijollillo.—Soft grain.

Faustin.—Like birch.

Guallacan.—*Lignum vitæ*; very common, close-grained, hard, heavy, and tough; works exceedingly well when rather green; grows to the size of from four to five feet diameter, and is much used for gun-carriages, wheels, &c.

Guachapali.—Soft, open grain, like walnut; brownish, tough, and

rather heavy ; grows to four or five feet diameter ; is much used for canoes and house-building.

Guayavito aseyjan.—White ; a beautiful close grain ; hard, tough, and heavy ; grows to a small size, and is a common wood.

Guava machete.—Like birch ; so called from bearing a fruit like, in shape, to a bill-hook, or machete ; brownish white, long coarse grain, and middling tough ; grows to but a small size, and is not common.

Guanavano.—

Gallito.—Soft, long, open grain ; whitish yellow, light, and porous ; grows to the size of one foot six inches diameter, and is common.

Guallavo ormigero.—So called because much infested by ants ; it is of a whitish yellow colour, soft, rather tough, of a long open grain, and lightish ; grows to about two feet diameter, and is common.

Guanavano.—A whitish yellow, light wood ; is not very tough ; grows generally in swampy grounds, to the size of two feet diameter, and is scarce.

Guavito.—A very white, soft wood, of an extremely bitter taste, and used as a medicine against the bite of serpents ; grows to the size of from four to six inches diameter ; is common, but has no other use than as a medicine.

Gorgojo blanco.—A very white, long-grained, soft wood, but close ; grows to the size of from one to two feet diameter ; rather brittle, but plentiful.

Guarumo.—

Guava peludo.—Fruit-tree, covered with a hair-like substance ; yellowish white, long-grained, tough, and soft ; grows to two feet diameter, and is common.

Huesito, or little bone.—Hard, close grain, like bone ; is much used for any small articles of ornamental cabinet-work, and handles to tools ; grows but to a small size, and is not common.

Jagua colorada.—Soft, close-grained, but tough ; grows to about one foot six inches diameter ; is a dye-wood, and much used by the Indians to carve into spoons, or small articles of ornament.

Jagua.—Whitish brown ; long, open grain ; soft, but tough ; grows to three feet diameter, and is common.

Jobo de lagarto.—A hard, close grain, like beech ; the bark like the skin of an alligator ; whitish, long-grained, and close ; soft ; grows to a large size, and is common.

Joboliso.—Close-grained, spongy, flesh-white, soft, brittle, and light ; grows to a small size, and is common.

Igeron.—Like ash ; one of the most plentiful woods in the country, along the banks of rivers ; a soft, whitish wood.

Juasimo.—Hard-grained.

Juasimo prieto.—Yellowish white, or brown ; soft, brittle, coarse-grained, and spongy ; grows only to a small size, and is common.

Limon.—A fine-grained, shiny, whitish wood ; hard and tough, some-

thing like ash ; bears the lime, or small lemon of the country ; it is a native of dry ground, and grows to but a small size.

Laurel.—A coarse, brownish white wood ; tough, long-grained, and soft ; has a small heart ; grows to about two feet diameter, and is used for building common houses.

Laureño.—Soft ; a dirty white colour ; coarse-grained, brittle, and light ; is common, and grows to a small size.

Moro—(Fustic) ; yellow, with a long fine grain ; hard and tough ; grows to the size of three feet six inches diameter ; a fine dye ; very common in the woods on the banks of the river Chagres ; has a peculiar smell.

Mamaisillo.—A close grain ; grows from six inches to one foot diameter ; the grain something like birch, but very tough, and yellowish, reddish, and red-brown ; is much used for rafters, and is common.

Mangle. (Mangrove ?)—Close grain, like birch ; reddish brown, and very hard ; is much used as timber for vessels ; is very common throughout the low and swampy lands near the coast.

Madroño a la sano.—Like lime-tree ; yellowish white ; of a beautiful close grain ; hard, tough, and heavy ; grows to one foot four inches diameter ; is common, and used for uprights in house-building.

Madroño fino.—Like box ; an excellent wood for turning ; grows to the size of one foot six inches diameter, and is common.

Membrillo.—White, hard, tough, close-grained, and lightish ; grows to a small size, and common.

Mata palo.—So called from its killing any other tree that it grows near ; a long, close, soft, shiny grain ; white, tough, and very common ; grows to a large size.

Mamey.—Like cherry-tree ; a fruit-tree of the country ; a hard, close grain ; grows to about two feet diameter, and is tough ; not very common.

Malageto.—Like ash.

Maria.—Grows exceedingly straight, and useful for masts and yards ; white ; long, close grain ; soft and light ; grows to one foot six inches diameter.

Majaguillo.—

Majagua.—

Nispero.—Hard, close grain ; yellowish white, tough, and light ; grows to about two feet diameter ; is common, and used for house-building.

Naranjito.—Like beech ; a very tough, close-grained wood, of a lightish brown ; only grows to a small size.

Naranjo del monte.—Like box ; a very fine, yellowish, close-grained wood ; very tough, and rather hard ; grows to the size of from six inches to one foot diameter ; is particularly used for planes, tools, and axe-handles, but is not very plentiful.

Niema de huevo.—A very tough, yellow wood, with a long, coarse grain ; grows to about a foot or fourteen inches diameter ;

there is a considerable quantity of this wood, but no particular use is made of it.

Negrite.—Whitish, soft, and brittle ; long, spotted grain ; grows to the size of about one foot six inches diameter, and is common.

Olivo.—Whitish, hard, tough, close grain, and heavy ; grows to three feet diameter, and is common ; the same as bird-lime tree.

Paiquillo.—White, close-grained, hard, not tough, and heavy ; grows to a small size, and is scarce.

Pilon.—A reddish brown, close-grained, hard wood ; very tough and smooth ; grows to two feet diameter, and is common.

Pironel.—Soft.

Pali mownton.—A whitish, close-grained, hardish wood ; rather tough ; grows from six inches to one foot diameter, and rather scarce ; is generally used in house-building.

Palo blanco.—A white, shiny, long-grained wood ; light and soft, with a very small pith ; grows to one foot diameter ; is common.

Quajado.—Hard, close, very tough, and untractable grain ; a most excellent wood ; grows to the size of two feet diameter ; indestructible ; common, and much used in house-building.

Quira.—A tough wood ; very hard, close-grained, and heavy ; of different colours—from light brown to very dark ; has an agreeable odour when newly cut ; grows to the size of three feet six inches diameter, (but generally from one foot to two feet six inches,) and very high ; it is plentiful, and much used in house-building.

Roble.—Whitish grey, and long-grained, like deal ; grows to a large size, and very common ; used much in house-building, but particularly by the Indians for paddles for their canoes.

Sigua amarillo.—A yellowish wood ; softish, fine-grained, brittle, and light ; grows to the size of one foot, or one foot six inches diameter ; is very straight, and not scarce.

Sota cavallo.—Hard, close grain ; a whitish, stringy wood ; excellent for hoops ; long-grained, and tough ; grows to a small size, but common.

Sereso.—Like beech.

Siti.—A hard, close, long-grained, dirty, brownish white wood ; tough, and grows to a large size.

Sapo.—A whitish, soft wood, little prized.

Sangrillo.—White, long grain, and soft ; common, and grows from four inches to one foot diameter.

Totumo.—The calabash tree ; a common wood ; grows to the size of one foot diameter, or more.

Toréte.—Yellowish white, soft, tough, long grain, and light ; grows to about one foot two inches diameter, and is common.

Vela.—Has a fruit of a long, white, candle-like pod ; the wood is hardish, with a white, tough, and fine long grain ; close and heavy ; grows only to a small size, and is common.

Ubero de montaña.—Whitish, hardish, tough, and a fine, spotted, long grain ; grows to a small size, and scarce.

Yalla armadillo.—A beautiful close-grained wood, almost like box, of a lightish brown colour; grows only to a small size—at most one foot diameter.

The fruits and esculent vegetables found in the Isthmus are those of other similar intra-tropical situations. The grains cultivated are rice and Indian-corn. The sugar-cane is grown, but not extensively. Coffee and cocoa are cultivated as required for domestic consumption. The caoutchouc tree,* milk-tree (*Palo di Vacca*), and vanilla plant, are all abundant in the woods. The charcoal made from many of the trees is considered excellent for smelting; and as such is exported to Peru, and in much request there. Some of them yield very rich and brilliant dyes, used by the Indians, but not yet known, as Mr. Lloyd believes, in commerce. The barks of others are medicinal, or abound in tannin. Ink is made both from gall-nuts, and a bush called alsifax, resembling the caper. Many valuable resins are extracted from different trees; particularly one, distilled from the bark of a tree called the *palo santo*, or holy tree, which is highly fragrant, and is both used as a remedy for disorders, and burnt as incense. The *styrax officinalis* of Linnaeus is very abundant, the gum extracted from it selling for two dollars a pound.

The wild animals of the woods are tigers, or rather tiger-cats, being seldom larger than small Newfoundland dogs; lions, at least so called; bears; racoons; sajinos, a species of wild boar, found in droves; wild hogs in herds; conejos, something like our rabbits, but larger; deer in abundance on the borders of the woods; hosts of monkeys of many species; with wild turkeys, both black and coloured; birds resembling our hen pheasants; pigeons, ducks, &c., all excellent eating. The most dangerous animals in the list are the wild hogs, which, when together in a drove, will, if fired on, readily attack one or two men. The tiger does not attack men, but freely preys on small cattle.

The isthmus has been famed for snakes and poisonous reptiles; yet Mr. Lloyd did not meet above one or two during his whole stay, and does not describe them. The country-people will seldom move after nightfall for fear of them, and always carry about their persons a ‘contra,’ or remedy, or what they generally consider still more efficacious, a ‘charm,’ against their bite. This charm is an alligator’s tooth stuffed with herbs compounded and muttered over by some old woman. It is worn round the neck. The ‘contra’ is said to be very efficacious, being a bitter root called guavito, scraped down, and part of the powder taken inwardly, and part applied to the bite.

* With the gum flowing from this, and while it is yet liquid, the inhabitants manufacture a sort of water-proof cloth, on the same principle as in this country; but which, thus prepared, is more uniform, and never cracks.

A great pest in the country are what are called ganapatas, or ticks, which, in half an hour's walk in summer, will completely cover the person, and are taken from their hold with some trouble. A smaller, but even more insidious enemy, is the the peito (*pulga*) de la Savaña, or Savannah flea, not larger than a grain of sand, of a deep vermilion colour, and very numerous. They attack the softer parts of the flesh, and occasion a very painful itching. Common fleas, niguas or chijos, and mosquitos, are in the usual abundance. Fire-flies are common and very brilliant ; with other insects, of which many, Mr. Lloyd believes, have not yet found a place in our entomological catalogues.

Of the domestic animals, and those chiefly used for food, some notice will be taken in another place.

The seasons are two—summer, or dry ; and winter, or rainy. The first commences about the end of December, and lasts till April ; the latter continues from April to December. The quantity of rain which thus falls in the year is prodigious ; but its amount varies in different places. The clouds hang chiefly over the wooded heights ; and at Porto-Bello, in particular, which is closely hemmed round by them, the rain descends in torrents, frequently accompanied by storms of thunder and lightning, of the most terrific description. Where the ground, to any extent, is level, however, and has been cleared of its wood, a great difference is perceptible ; and at Panamà the following alternations may be observed. In April the weather becomes cloudy about noon ; but after drizzling for half an hour, clears up. In May, from nine to eleven, it is dull, with slight rain ; the afternoons being still fine. In June there is rain every morning and evening ; but the mid-days are fair. As the season advances, the rain gradually increases ; and is incessant throughout July, August, September, and October. In November the nights are always wet and cloudy ; but through the day the sky begins to break. December brings a further improvement. And in January, February, and March, a shower of rain is as uncommon as a gleam of sunshine at the other season of the year.

One very remarkable phenomenon occurs throughout the whole isthmus. On the 20th of June the rain ceases for five or six days ; the sun shines out during the whole day with the utmost splendour ; nor is any instance known of irregularity in the recurrence of this break in the ordinary course of the season. It is accordingly reckoned on with great confidence by the inhabitants, kept as a period of social enjoyment, and called *El veranito* (or little summer) *di San Juan*, either from the feast of St. John, which is nearly coincident in time, or, as others say, from the village of San Juan on the Chagres, and about twenty-three miles from Panamà, where the phenomenon is peculiarly observable.

The temperature and salubrity of the climate also vary in different places. Porto-Bello is one of the hottest and most unhealthy places in the world. At Panamà, on the contrary, the thermometer in the rainy season does not rise higher at night than 82°; in the day than 87°: the winds are variable and cool; and though the rain is incessant, there is thus no stagnation in the atmosphere, nor consequent epidemic sickness. In summer the temperature rises to 90°, and even 93°, and in the day the reflection of the sun from the smooth surface of the Pacific, with the heat of the winds which blow steadily from the south-east over a track of dry savannahs, makes it very sultry; but the land-winds at night are cool, coming chiefly from the adjoining mountains: and the climate may be called generally healthy, though a considerable mortality sometimes occurs. This, however, Mr. Lloyd thinks, may almost always be traced to excessive indulgence, especially in the use of raw fruits and vegetables, and occasionally also to the quality of the animal food, which, at particular seasons, is, he thinks, injuriously affected by the excessive richness of the pastures. The family of the British consul resided four years in Panamà without an hour's sickness; and Mr. Lloyd and his companion were seventeen months in the country, during the whole time exposed to the utmost rigour both of sun and rain, yet with entire impunity.

II. TOPOGRAPHICAL DETAILS.

Rivers.—There is hardly a mile of land in this whole province which is not in the rainy season intersected by some little river or *quebrada*, which carries off the superfluous water, and is occasionally difficult to pass. But in the summer most of these dry up; and only the following rivers are considered by Mr. Lloyd worthy of particular notice. On the north side, and falling into the Atlantic, the Chagres, Pequeni, Trinidad, and Gatun, which all join, and form one before reaching the sea; and on the south or Pacific side, the Rio Grande, the Caymito or Chorrera, the Pacora, Indio, and Ballana or Chepo.

The Chagres takes its rise a considerable distance east of Porto-Bello, among the high mountains which approach the Bay of Mandingo; and after traversing a great tract of country, when nearly opposite Porto-Bello receives the Pequeni, which comes from the south-east, and is as large and broad as itself. The two thus form a very noble river, too rapid, however, to be easily navigable; and accordingly, though canoes ascend both branches in the dry season, even above the common point of junction, the passage is considered dangerous from the number of falls or rapids, in some of which the stream runs with extraordinary velocity. In proportionate distances, as it approaches Cruces, its

rate abates. At that town, which is twenty-three miles direct from the sea, forty-four as the river winds, it seldom exceeds three to three and a half miles per hour, even in the rainy season. At Peña-Blanca it runs two miles; at Gatun scarcely one; and at Brusa the current is in summer imperceptible.

' Few rivers of its size present more beautiful scenery on its
' banks than does the Chagres above Cruces. For miles together,
' it is bounded by enormous, abrupt masses of limestone, of the
' most curious and fantastic forms; in other parts, savannahs ex-
' tend to the very edge of the river, covered with a particularly
' fine grass called grammalotti; and the noble bongo tree is seen
' studding the banks, something in the shape of a well-trimmed
' yew tree, but growing to a much larger size. In most places
' the river is shaded from the sun's rays by a large tree called
' jigeron, which extends its branches across the river, its leaves
' being eagerly sought by the fish. The water generally runs over
' a bed of various description of pebbles; and is in summer
' most brilliantly clear. In many places, near its source, it is
' much wider than at its mouth, occasionally breaking into dis-
' tinct channels, and forming small islands; but in the rainy sea-
' son these are all connected, and constitute one broad stream,
' with strong sets and eddies, caused by the abrupt turns, which
' render its navigation peculiarly perilous. Many years ago, from
' repeated and long-continued rains, the river rose until it arrived
' at the foundation of the church at Cruces, situate on a small
' rise, about forty or fifty feet above the present level; the greater
' part of the town was submerged; and no intercourse could take
' place among the inhabitants for some weeks, unless by canoes.
' But towards its mouth, as far up as the river Trinidad, it has
' never been known to rise more than six or eight feet, and this
' height the banks easily confine.'

The river Trinidad enters the Chagres about twenty-four miles from its mouth; and is also a large river. It rises very near the south coast, not far from the town of Chorrera, which, as will afterwards be seen, gives its name to a considerable river on its other side, flowing into the Pacific. Canoes of various descriptions navigate the Trinidad as far as a large town called Capua, which lies south-west of Chorrera, and bring down produce to Chagres. As high as Mr. Lloyd went up, which was not, however, to this point, the breadth was about two hundred feet, the depth from twenty-eight to twenty feet, the reaches (*calles*) long and straight, without falls or any other impediment to easy navigation.

The Gatun is also of considerable consequence, though neither deep nor wide. It rises in the mountains east of Porto Bello, and crossing both the roads leading from that city to Panamà, joins the Chagres in front of the town of Gatun, about eight

miles from the sea. Its depth does not exceed from seven to ten feet even at the mouth, shallowing down to four and even to one, a few miles up ; and its navigation was further impeded, when Mr. Lloyd visited it, by a number of trees, which, having been undermined by its waters in the previous rainy season, had fallen across and still encumbered it. Its importance to the inland communication, however, consists in this—that canoes bound to Porto Bello from Chagres, and which, in stormy weather, when the coast is dangerous, would be altogether wind-bound, are enabled to ascend it as far as a village called Aqua Sucia, whence their cargoes are conveyed to and from Porto Bello on men's shoulders. Besides which, several quebradas enter it to right and to left along its course ; and all contribute somewhat to facilitate access to the adjoining country. Some considerable lakes also exist in this direction, with which several of them communicate.

With the united assistance of all these rivers, the navigation of the Chagres, below the junction of the Trinidad, is easy, and even superior to many much larger streams. The depth below Gatun varies from twenty-six to thirty feet ; above, it is twenty-four, and nowhere falls below twenty-two, unless on some few spots, where only sixteen are found, which, however, have deep water close to them. This depth, too, is not in a channel, but the whole breadth of the river, which is from two hundred to three hundred and eighty feet wide. The banks are precipitous, of trap and porphyritic formation, wooded to the very edges, and almost everywhere admit of vessels being brought close to them ; and the current, as already noticed, is here very moderate.

The Rio Grande rises to the north-west of Panamà, near a mountain called Pedro Miguel : and after receiving several streams, becomes navigable for very large canoes two leagues above its mouth, which is about two miles from Panamà ; and here a bar runs across it, on which, at low water, there is not more than two feet water. The tide rises, however, so high in the Bay of Panamà, (about 18 feet in spring tides,) that vessels easily enter the river, and within the bar have good anchorage. Much interest was at one time taken in this river from the near approach, in some places, of its course to that of the Obispo, which falls into the Chagres a little below Cruces ; and from the idea consequently entertained, that a water communication across the isthmus might be obtained by cutting a canal between the two. The shallowness, however, of the Chagres thus high up, the short and broken course of the Obispo, and the much greater facilities offered elsewhere, for establishing a communication by rail-road, appear to Mr. Lloyd to be, for the present at least, insurmountable objections to this plan. Were a great traffic already es-

blished across the isthmus, it might become valuable in competition with other routes.

The Caymito, or Chorrera, empties itself into the Pacific about ten miles west of Panamà, and is formed by the junction of numerous petty streams, which take their rise in different parts of the western cordillera. It is very deep towards its mouth; and the branch called Rio Martin Sanchez continues navigable for large canoes, quite up to the town of Chorrera, which thus gives one name to the whole river: the other is derived from the prodigious number of alligators, sword-fish, &c., which infest it. The tide runs very strong in and out of this river, not being impeded by a bar at its mouth; and the anchorage for shipping is thus bad and exposed.

The Pacora and Indio unite before reaching the Pacific, near the island of Chepillo, about eighteen miles east of Panamà; and form a broad, rapid, and winding stream for several leagues above their mouth. To seaward they are protected by innumerable sand banks, between which at low water only very narrow passages appear, prodigiously infested with sharks and alligators; but at high water the navigation is good even for large ships some way up the river; and is open for canoes up the Pacora, as far as the town of the same name, and up the Indio for an equally considerable distance. On the banks of the latter an English gentleman resident in Panamà has erected a saw-mill capable of sawing from fifteen to twenty thousand boards annually. An inexhaustible supply of the finest timber is in its immediate vicinity; and the fertility of the soil, where cleared, is such, that a small portion, with the labour of two men only, affords an ample supply of every article of subsistence for the whole establishment. Several roads lead to it from the neighbouring villages; and one has been formed from a place on the united stream called Sambaja, where the largest class of vessels remain. The boards are rafted down the river, and have a ready sale, not only in Panamà, but also in Guayaquil and Peru, in the latter of which there is a scarcity of wood. On the banks, at the mouth, a wild animal is found, called *macho*, or *vacca del monte*, and sometimes also *danta*, nearly of the size and appearance of a jackass; which, when shot, is considered a great dainty. All the land between this river and Panamà is low and dry.

The Ballano or Chepo is of great extent, and, under the name of Canada, rises in the province of Darien, near the source of another river called Chucunaqué, which falls into the Pacific in the Gulph of San-Miguel. The Ballano receives several considerable streams during its course, which is nearly west, and in some degree parallel to the coast, for many miles; until it sud-

denly turns to the southward, and enters the Pacific a few miles east of the Pacora. It is navigable as far as this turn; and on its banks a little higher up is situate the town of Chepo, which is of some consequence, as being the assigned place of communication with the Mandingo Indians. Further on is a fort called Fuerte Terrible, built to prevent their incursions; and the line of the river generally is considered the boundary. An extreme, but not active, animosity is still maintained on both sides.

Communication across the Isthmus.—This is at present maintained chiefly by two lines of roads; one from Panamà to Porto-Bello, the other equally from Panamà, by way of Cruces or Gorgona, down the Chagres, to the sea-port of the same name at its mouth. There are some others in use for conveying cattle and other farm produce to and from other points, but they are little known; and under the Spaniards their improvement and multiplication were much discouraged. Mr. Lloyd, however, strongly recommends a new line to be now formed, differing from them all, beginning on the Atlantic at a fine bay called Limon, or Navy Bay, about five leagues east of Chagres; thence to that river, some miles above its mouth, where its course approaches this bay, by a canal; thence up the river to a favourable situation on the south bank of the Trinidad, where its shores are excellently suited for being converted into wharfs and landing-places, both for goods and cattle; and thence, finally, to Panamà or Chorrera by a railroad—the latter being the shorter distance, but the former the preferable route, both as conducting to a better sea-port, and as terminating in Panamà, the capital of the department, and where its trade is already chiefly centered. And his reasons for this innovation will be readily gathered from the following abstract of the topographical notices bearing on this point, into which he enters in his notes at great length.

The harbour of Porto-Bello is most excellent; but such is its dreadful insalubrity, that at no period of its history did merchants venture to reside in it, except for a few weeks in the best season, in which was held its great and well-known fair. No class of inhabitants can long exist in it: even negroes do not generally support a prolonged residence; and it was firmly believed for a considerable time that it was especially fatal to women in child-birth. Animals of other countries are said also to feel the effects of the climate, and do not produce; and Mr. Lloyd states it as at least certain that domestic fowls brought from Cartagena and Panamà shortly cease to lay eggs, become emaciated, and their flesh soon gets little better than carrion. Pigs and mules seem to be the only exception, thriving here as in other parts of the West Indies; and toads are most disgustingly numerous. Such a port as this, however, is entirely unsuited to be the centre of a great

trade; and, accordingly, the intercourse between the two seas is already chiefly removed to Chagres. But the harbour to seaward is not there equal to what might be expected from the river which it receives and discharges. A ledge of rock runs across its mouth, with not more than fifteen feet water in the deepest places, and in many rising even to the surface. A heavy surf thus frequently breaks from land to land; and even under the most favourable circumstances no vessels drawing more than twelve feet water can enter the river.

The bay of Limon, on the contrary, is about five miles wide at the entrance, and can be approached by night or day, in any weather, there being no danger unless quite close to either shore. Its opening is due north. On the western side several projecting points afford secure and commodious anchorage within them, the innermost inclosing what is at present considered the harbour, but which a break-water, formed, at little expense, of the coral rock which abounds on the shores, and which has been already noticed (p. 71), would enlarge to any extent that could be required. The bottom of the bay curves regularly, bounded by a beach of very tenacious sand, and beyond by a bank, raised a few feet above high water-mark, and formed of shells thrown up by the surf, which, in strong northerly winds, breaks here with some force. About three miles from the east point of the bay the land falls back in another deep curve, within which is situated an island called Manzanilla, a mile and a quarter long and a mile broad, forming a fine channel with the main land, with excellent anchorage for large ships for some distance within its entrance,—and shelter for small vessels to repair or careen, in a large lagoon inclosed between the main land and the south-eastern end of the island. The depth of water in the bay decreases regularly from six fathoms to three, two, and one and a half even close to the shore; and its value as an anchorage is already well known to British vessels on the coast, from whose visits it has acquired the name of Navy Bay. Along its shores the land is first studded with cocoa-nut trees, which are succeeded by mangroves, and these again by the dense forest. The climate is comparatively healthy, and the fall of rain moderate, even at present; but when the adjoining woods are more cleared, there is little doubt that it would be still further improved in both respects.

To this bay the Chagres approaches in its course to within two miles and a half, the interval being perfectly level, with the exception of a few abrupt eminences from forty to sixty feet high. The soil is a stiff clay, covered with stunted wood, and intersected by a few rivulets, or *quebradas*, which in summer are still water, and somewhat brackish. A canal cut in the most favourable direction would come out near the Rio Indio; and as about this point the

mean height of the river is nearly that of the ocean, no locks would be required, and the supply of water would be certain and economical.... Once on the Chagres, the navigation, as has been already noticed, is easy to the Trinidad; from which, to Chorrera and Panamà, Mr. Lloyd's lines are across the interval between the several portions of the cordilleras, where the country is, almost without interruption, low and flat.

The present roads, on the contrary, are not merely objectionable for the reasons already stated, but also from the mountainous nature of the country which they traverse. That between Panamà and Porto-Bello is, in this respect, greatly the worst of the two, being in many places almost impassable in the rainy season, from the steepness of the ascents and descents, none of which are sought to be avoided. But the roads to Cruces and Gorgona also lead across a mountainous country, and are extremely difficult in bad weather; a considerable portion of the latter, indeed, being merely the bed of what is in winter a considerable stream.

Panamà.—The site of Panamà has been once changed. Where the old city stood, which is about three miles east of the present situation, was already, when the Spaniards first reached it in 1515, occupied by an Indian population, attracted to it by the abundance of fish on the coast, and who are said to have named it ‘Panamà’ from this circumstance,—the word signifying, in their language, ‘much fish.’ They, however, were speedily dispossessed; and even so early as in 1521, the title and privileges of a city were conferred on the Spanish town by the Emperor Charles V. In the year 1670, it was sacked and reduced to ashes by the buccaneer Morgan; and was only after this built where it now stands.

Its present position is in latitude $8^{\circ} 57'$ N., longitude $79^{\circ} 30'$ W. of Greenwich, on a tongue of land shaped nearly like a spear head, extending a considerable distance out to sea, and gradually swelling towards the middle. Its harbour is protected by a number of islands, a little way from the main-land, some of which are of considerable size, and highly cultivated. There is good anchorage under them all, and supplies of ordinary kinds, including excellent water, may be obtained from most of them.

The plan of the city is not strictly regular, but the principal streets extend across the little peninsula from sea to sea, and a current of air is thus preserved, and more cleanliness than is usually found in the Spanish American towns. The fortifications are also irregular, and not strong, though the walls are high,—the bastions having been constructed, from time to time, as the menaces of pirates or other enemies have suggested. The buildings are of stone, generally most substantial, and the larger with courts or patios. The style is the old Spanish. Of public edifices there are a beautiful

cathedral, four convents (now nearly deserted) belonging respectively to the Dominican, Augustin, Franciscan, and Mercenarios monks; a nunnery of Santa Clara, a college *de la Compania*, and also the walls of another, which was begun on a magnificent scale, but was never finished, and is now falling to ruins.

Immediately about Panamà, east along the coast, and north-west from it, the land is low and flat; but west and north-east, the mountains approach it closely; and from a hill, called Cerro Ancon, about a mile west from the city, and six hundred feet high, an excellent bird's-eye view is obtained of the whole adjoining country, including the city, the islands in the bay, the neighbouring plantations, the mountains of Veragua, the Pearl Islands, the flat country towards Chagres, the elevated chain between Porto-Bello and Panamà, the Rio Grande, the low land along the coast towards the Pacora and Chepo, Panamà Vieja, &c., all which come successively under review, and together constitute a landscape beyond measure beautiful.

Porto-Bello—Was first discovered in 1502 by Columbus, who thus named it from the excellence of its harbour. It is situated in lat. $9^{\circ} 34' 35''$ N., long. $77^{\circ} 45'$ W., close to the sea, at the foot of immense mountains, which surround the whole port;—and consists of one long street, which circles round the bay, with a few short ones branching off where the ground will admit of them. There are, besides, two *plazas*, or squares, one in front of the Treasury, which is built of stone; the other formed on one side by the church, which is also of stone, and spacious, relatively to the population, but of late years it has been allowed to go very much to ruin. The same may, indeed, be said of all the public, and most of the private works: the hospital, and even the fortifications, are dilapidated, and of the houses in town only a few remain tenantable.

It has been already noticed that animals brought from other countries speedily degenerate and cease to produce here; even the fowls sent from Cartagena, or Panamà, shortly giving up laying eggs. All the meat that is consumed is thus sent from Panamà, or from some of the *hatos* on or near the road; and if not immediately killed the animals become emaciated, and their flesh little better than carrion, though there appears plenty of excellent herbage in the vicinity of the city. For this reason, although in every other part of the country there are numerous cattle estates, not one is to be found in this vicinity; and the only animals that appear to thrive are pigs and mules.

The heat is generally most oppressive. The town being surrounded by mountains, the freshening sea-breeze is never felt; and the immense forests that cover the mountains, and indeed the face of the whole country, precluding the passage of the sun's rays to

dry the earth, the most dense vapour is continually exhaling, which ascends and forms immense clouds, deluging the country with almost incessant rains. The sun occasionally bursts out with the greatest fierceness, but before it can have had any but a mischievous effect, even to dry the streets, it is again enveloped in clouds ; and again it rains, clearing up, and raining, in such rapid succession, morning and night, that the heat is seldom moderated.

The dampness and unhealthiness of the climate, combined with the heat, and the immoderate use of spirits, soon succeed in so enervating the constitution, that the first attack of an epidemic is generally fatal ; and though medical men of eminence have occasionally been induced to settle in Porto-Bello, they have seldom found their medicines and learning sufficient to guard even themselves long against the effects of the climate. The city has thus acquired the title of ‘ *La Sepultura de los Europeanos.* ’

The population is now extremely limited—the greater part being negroes and mulattoes, with one or two old Spaniards, who still cling to their property here. Occasionally a few visitors arrive from Panamà, with goods, which they dispose of at an exorbitant price ; and a small detachment of troops is sent from Panamà to do duty for a certain time. But this is frequently relieved ; and the survivors look forward with great joy to the day on which they are allowed to depart.

The waters that run from the different mountains are particularly clear, and delicious to drink ; but wo to the person who is rash enough to make immoderate use of them, their very excellence being their misfortune, as they cause dysenteries, from which few escape ; and almost all the fevers of the country degenerate into this disease. They, however, afford the luxury of a cool and refreshing bath, which every one takes a little before noon ; and it is considered one of the most important occupations of the day.

As the mountains and forests, which abound with animals of various descriptions, extend to the very foundations of the houses, it is not uncommon to find wild hogs and small tigers near the town, and the latter sometimes make inroads on the fowls and other domestic animals. They are anxiously sought after, however, by the negroes and mulattoes, who frequent the forests as wood-cutters, and are particularly expert in attacking tigers, generally with no other arms than a lance and a machete, or very long sabre-like knife. With these they seek their hiding-places ; and, encountering one, with the left arm enveloped in a blanket they with the lance incense the tiger to make a spring, when they wound him in the tendon of the paws if possible, which makes him retire. The hunter pursues, and generally succeeding in again

cutting the paws, afterwards despatches him at his leisure,—carrying his head, paws, and skin, to Porto-Bello, as a trophy of his valour, and preserving the skin to make tobacco-pouches, or covers to little easy chairs, used in the country.

The great abundance of toads about Porto-Bello has been already noticed. This is so prodigious after rain, that the popular prejudice is, that the drops are changed into toads (*de cada gota viene un Sapo*); and even the more learned maintain, that the eggs of this animal are raised with the vapours from the adjoining swamps, and, being conveyed to the city by the succeeding rains, are there hatched. Their large size, however—many of them being from four to six inches in breadth—sufficiently attests their mature growth in more favourable circumstances. After a night of rain, the streets are almost covered with them, and it is impossible to walk without crushing them.

Chagres.—The town of Chagres is one of the most miserable that can be imagined, being situated in a little sandy bay on the north side of the river, open to no wind but a westerly one, and bounded by woods to the south, by a black and dismal-looking fortification on a hill to the north, and by a swamp to the east, which is continually fed by springs which have no outlet. It also is thus extremely unhealthy. The inhabitants are chiefly black, or coloured, with the exception of a few custom-house officers, and the commandant of the castle. Their number is about one thousand. In entering the river from the sea, the town is not seen till close upon it; and does not look better than a collection of negro huts on a West India sugar plantation, the houses being chiefly built of mud, and thatched.

Gatun, Gorgona, Cruces, &c..—Gatun is quite a small village. Gorgona is somewhat larger, being a point where passengers going to Panamà frequently land, in order to avoid the danger and delay caused by the progressively increasing rapidity of the current, as boats ascend to Cruces. Cruces, however, is the place to which goods are always conveyed, and was a village of considerable extent when Mr. Lloyd first saw it, but was accidentally burned down in 1828. When he left it, there were not more than one hundred and twenty houses, built of reeds, occasionally plastered, and neatly thatched. The inhabitants of these places are nearly all owners of canoes or mules,—or store-keepers for taking charge of goods,—or bogas, that is, persons employed in working the canoes, which is done either by paddles or poles, according to the depth of water. Cruces and Gorgona are also resorted to as watering-places in summer by the inhabitants of Panamà, being considered very healthy; and the town of Chorrera, on the river of that name, falling into the Pacific, has the same advantage.

Gold Mines.—Mr. Lloyd visited the gold mines of Santa Rita and Pequeni, both in the mountains of Porto-Bello, but could discover nothing but a few shafts, or rather holes, of little depth, which, if they ever were productive, seem now exhausted. He very much doubts, indeed, whether the places shown him as the mines are really those where (according to tradition) large quantities of ore were once obtained; and thinks that some deception was employed,—probably to deceive the Spanish government—when they were in activity. They are now almost abandoned.

III. STATISTICS.

THE present department of the Isthmus is divided into two provinces, viz. Panama, which includes the Darien, and Veragua; and these again are divided into cantons, having a certain number of parishes in each, as follows, according to a census taken in 1822.

PROVINCE OF PANAMA.

CANTON OF PANAMA.		Inhab.	CANTON OF LOS SANTOS.		Inhab.
Panama, capital of department	10,730		Los Santos, capital, distant from Panama fifty-three leagues	4318	
Parish of Pacora	657		Parish of Parita	2170	
" Chepo	1933		" Sn. José de Pére	3142	
" Chiman	238		" Pocri	1939	
" Sn. Juan	174		" Macaicas	2338	
" Cruces	1200		" Las Tablas	3577	
" Gorgona	549		" Baca Monte, or Sta. Barbara	1141	
" Taboga	543		" Pedasi	1544	
" Pearl Islands	700		" Ocu	1179	
		16,724			
					21,348

CANTON OF CHORRERA.

Chorrera the capital, distant nine leagues from Panama	4000		Nata the capital, distant forty-two leagues from Panama	4262
Parish of Areyjan	834		Parish of Anton	1281
" Capira	1000		" Sta. Maria	2562
" Sn. Carlos	577		" Penonomé	8643
" Chame	1000		" Ola	360
		7411		
				17,108

CANTON OF PORTO VELO.		CANTON OF DARIEN.	
Porto Velo, the capital, considered to be twenty- two leagues from Panama	1122	Tavisa, the capital, distant thirty-eight leagues from Panama	341
Parish of Sta. Rita . . .	76	Parish of Sta. Maria	245
" Chagres . . .	856	" Fichichi . . .	100
" Palenque . . .	312	" Pinogana . . .	146
" Pta. Gorda . . .	59	" Molineca . . .	35
		" Fucuti . . .	113
		" Cana . . .	30
		" Chipigana . . .	162
	2425		1172

PROVINCE OF VERAGUA.

CANTON OF SANTIAGO.		CANTON DE LA MESA.	
Santiago, the capital of, dis- tant from Panama sixty leagues	4568	La Mesa, the capital, distant — leagues from Pa- namá	4451
Parish of Jesus	1276	Parish of Cañasas	2542
" Montijo	1182	" Palmas	545
" Punaga	509	" Soná	1184
" Sn. Francisco de la Montaña . .	4387		
" Atalaya	785		
" Calobre	1463		
	14,170		8722

CANTON OF REMEDIOS.		CANTON OF ALANGE.	
Remedios, the capital, dis- tant — leagues from Panama	1800	Santiago de Alange, the capital, distant — leagues from Panama . .	2611
Parish of Tolé	409	Parish of Sn. David . . .	2385
" Sn. Feliz . . .	324	" Sn. Pablo . . .	312
" Sn. Lorenzo . .	2477	" Gualaca . . .	842
		" Biyaba . . .	242
		" Dolega . . .	739
		" Boqueron . . .	334
	5010		7465

SUMMARY.

Canton of Panama	16,724
, Los Santos	21,348
, Chorrera	7411
, Natá	17,108
, Porto Velo	2425
, Darien	1172
Province of Panama	66,188
Canton of Santiago	14,170
, La Mesa	8722
, Remedios	5010
, Alange	7465
Province of Feragua	35,367
Total number of inhabitants in the government of the Isthmus in the year 1822	<u>101,550</u>

Most of these cantons are alike in their resources and agriculture (with the exception of Porto-Bello and Darien, which are almost uncultivated), but distinct reports of the produce of each were not procured. The following specification, however, of that of the canton of Los Santos, in 1827, may serve as an example with regard to cultivation; and a census of the parish of San Francisco de la Montana is also subjoined.

STATE OF THE CANTON OF LOS SANTOS IN THE YEAR 1817.

Census of the town of San Francisco de La Montaña, in Veragua, for the year 1825.

	White.		Coloured.		Total.
	Men.	Women.	Men.	Women.	
St. Francisco.	2896		2448		5344
Baptized .	63	64	28	53	208
Died	10	15	19	14	58
Married ..		10		15	25

With regard to the above tables, Mr. Lloyd observes that the division into white and coloured is not strict, as most descendants of mestizos, and even mulattoes, if their circumstances are easy, are considered white. And also, that the excess of baptisms over deaths in the second table, multiplied by the five years intervening between its date, and that of the previous census, will not give the whole difference between the respective numbers:—whence he considers it probable that all those in the first are under-stated, and may be increased in the same proportion, in order to give the population in 1827. Some other observations, however, also occur respecting these tables; and may be advantageously interwoven with the additional facts to be yet adduced.

It may reasonably be doubted, perhaps, how far tables of such extreme minuteness regarding a thinly peopled, and by no means highly civilized district, are quite so correct as they pretend to be;—but supposing them to approach the truth, a very remarkable disproportion is first observable between the males and females, both in the human species, and, as may be worthy notice, among brutes also, the return of men in Los Santos, in 1827, being 11,225 to 14,642 women; and of horses, 4564, to 9544 mares. Of the first, above a half were whites, or so considered, all being creole, or born in the country. The remainder were coloured, chiefly Indians, condemned, by their position in society, to servile labour, at a low rate of wages and subsistence, but not slaves;—of which latter the return only gives 295 (probably Africans, but not so stated), out of the whole 26,000 inhabitants in the province. The deaths in 1827 were only one in twenty-eight, a very small mortality in a tropical climate; and confirming Mr. Lloyd's previous statements of the healthiness of the western districts of the department. The births were one in twenty-six persons, or thirteen couple,—the marriages were only one in 174 persons, or 87 couple. And they were more numerous among the coloured, than among the white population.

One person in every five had a house, or, in other words, the

average number in a family was five, which may be thought to indicate a slow increase. Accordingly, the excess of births above deaths in Los Santos, in 1827, was only 324, one seventy-second part of the population, or about one and a half per cent. In the United States the increase exceeds three, and approaches to four per cent. Of the houses, a very large proportion, almost a half, are marked as houses in the country, indicating at once security, and the prevalence of agricultural occupation; two-thirds are stated as 'thatched houses,' the remainder as 'tiled.'

The column marked 'cattle' includes both oxen for draught and slaughter. The breed is of good size; and the draught-oxen, when well broken, fetch from twenty-five to thirty dollars each. Those for slaughter may be bought at from twelve to eighteen dollars each, the best. The race of horses is small, but hardy; and their price varies from fifteen to forty dollars. Mules are said by Mr. Lloyd to be the animals most prized in the country, yet the return of their numbers in the canton of Los Santos, in 1827, is so small, as strikingly to illustrate his previous statement as to the flatness of the country in this direction; for in mountainous districts, it is well known no other animal is ever rode. Their price varies from twenty, even to 120 dollars. The number of goats is also very small, which, at first sight, seems merely to confirm the same fact; but when it is considered that, throughout the West Indies generally, this animal supplies the place of the sheep for the table, and in some degree also that of the milch-cow for the dairy, its rarity here leads to a further induction. Pigs are few, and of most exorbitant value; of a good size and well fattened, they will fetch from thirty to thirty-five dollars each; and are chiefly purchased by women butchers, who, after killing them, cut off every morsel of fat, and sell it separately as lard for culinary purposes.

Fish and fowl are plentiful, cheap, and much used; and in Panamá market, hundreds of young sharks, of the kind called shovel-nosed, and from one to two feet and a half long, are daily sold for food. The guana* is considered an especial dainty, as are pearl oysters, and many varieties of game, which are brought in

* Thus described:—'It has much the appearance of a small alligator, of a yellowish green colour, and is very common along the banks of all the rivers, living chiefly on fruit and leaves of trees. It has a peculiar power of running on the top of water, which it does with great rapidity, and apparently with the greatest ease. Its claws seem, indeed, formed for the purpose, having a membrane, or web, resembling that of the duck.'

'The eggs of these creatures, when dried, are considered a great luxury. They are little larger than a boy's marble, and have nearly the same flavour with turtle-eggs. The flesh itself resembles that of the fowl, both in appearance and taste. The Mosquito-Indians occasionally come to the river Chagres, in companies of twenty or thirty, to hunt the guana, which they do with great expertness, chasing them into the trees with small dogs, and shooting them with fowling-pieces. The Americans have taught them to know and use these both with percussion and other locks.'

from the woods. Even monkeys are eaten, especially in the country bivouacs, though seldom offered for sale in the town markets.

The chief articles of farinaceous food are maize, or Indian corn, and rice; yet the home growth of each seems very moderate. They are peeled, or shelled, by hand, in a rude mortar, made by hollowing out a piece of a large tree; and the operation is so troublesome as to make a great difference in the price of the article before and after it is performed.

The greater part of the sugar used in the Isthmus is imported in skins from Central America, or from the Valley of Cauca, by way of Buonaventura, on the Choco Coast. It is thus dear. The home produce is chiefly miel, or molasses, and raspadura, or pan-sugar, which are preferred by the inhabitants to the finer preparations. Great quantities of wild honey are found in the woods, the bees collecting which do not sting, and are thus robbed without precaution. No return is made of the manufactory of ardent spirits.

Mr. Lloyd thinks that the Statistical Table, given above, of the province of Los Santos, may be considered generally as descriptive of the others also, with the exception of Darien and Porto-Bello, which are comparatively uncultivated, and of Panamà, in which the vicinity of the capital city gives a preponderance the other way. In general, however, he adds, the western and central districts, with the islands in the bay of Panamà, are the best cultivated and most populous, Los Santos being one of them. Elsewhere the landlords keep their estates chiefly in grass to save trouble; and the population is nowhere industrious, though strong, and enduring, under occasional fatigue.

Their indolence, it is added, is not to be attributed wholly to the climate, or their own original constitution, but chiefly to the extreme fertility of the soil, and the comparative ease with which a man and his family can derive subsistence from it. With a gun and axe individuals, otherwise unprovided, take up their residence in any corner of the woods, and in two or three days will have erected a substantial hut, with upright posts and cross-pieces, as firmly fastened with vines as any nails or clamps could make them, and thatched with the split branches of the wild palm-tree, one of the best materials possible against either wind or rain. The family, at their leisure, then form a stage or second floor, to which a piece of balsa, cut with notches, serves to ascend; and a few stones for a fire-place, an iron cooking-pot, and some pieces of wood to sit on, complete the establishment. The nearest trees to the habitation are cut down, fire is applied to the more distant, which, after burning some days, leaves the ground ready for a crop; advantage is taken of the first rainy season to get in the requisite seeds; and for everything else implicit reliance is placed on the gun. None of these people stir, even to work, without this their constant companion (generally an old musquet); and in an hour or two they are

certain of bringing down as much animal food as they can consume in a week, with sufficient, besides, to barter at the nearest village or town, for rice and plantains.

With the indolent habits thus acquired by the free population, and the very small number of slaves in the department, it will appear difficult at any time to command the requisite amount of labour for public purposes; and the actual bad state of the roads seems to demonstrate that this, among other obstacles, is really felt to stand in the way of great improvements. Mr. Lloyd, however, is of opinion, that this difficulty would not be insurmountable were a considerable work, of undoubted public utility, (as, for example, cutting his new line of road between the two seas,) to be undertaken by a powerful company. ‘There are within the province,’ he says on this head, ‘several regiments of militia formed of the lower classes of people and Indians, excellent workmen in felling timber and clearing ground, and particularly apt in acquiring any mechanical art. They have advantages over Europeaus which, from the nature of the climate, will always exist. Their habits are most simple: with a piece of tasajo or dried beef, a few plantains, and some rice, they are provided with the sustenance on which they live from youth to age; and with a skin in their huts on which to sleep, and a block of wood to sit on, their establishment is complete. Their dress never alters, winter or summer; it consists of a short brown holland or check shirt, and a pair of caljonjillas, or drawers, reaching to the knee (which are generally cast off when at work); shoes are known to them only as articles of great luxury; they seldom want anything to protect their feet, and if they do, a piece of hide is used, cut and tied very neatly as a sandal. Their common wages are from two to three reals a day (from 1s. to 1s. 6d.), with their meals, which, as they are fed, may cost about 4d. per day more. These men, there is no doubt, the government (under particular circumstances) would gladly place at the disposal of a company, with individuals to command and keep them in order; and in one instance this has been already offered, though not accepted, to the extent of one thousand men.’

Trade.—The trade of the isthmus is at present at a very low ebb. On the Atlantic shore it is maintained with Jamaica, by a British man of war, which sails every month, between the 20th and 28th, for the express purpose of carrying letters and specie,—with Cartagena, by government vessels, twice a month,—and with the same, and a few other points, by independent traders, which bring freight to Chagres, and exchange them. On the Pacific it embraces all parts of the coast, both north and south, which find it their interest to communicate with Europe in this way.

The expense of conveying specie across the isthmus to be embarked at Chagres is as follows,—A mule will carry five thousand

dollars or ounces, and its hire from Panamà to Cruces is six dollars; the municipal duty is one dollar, and another called Piso is two reals. From Cruces to Chagres the freight for the same sum is one and a half dollars; the portage at Chagres is as much more; and the whole charge on it is thus ten dollars two reals, besides a transit duty of three per cent. on silver and one per cent. on gold.—The return trade in goods is at the following rates:

The water-carriage from Chagres to Cruces is two dollars the bale; and warehouse room in Cruces two reals more. Thence the goods are carried to Panamà, either on mules, or by natives on their shoulders, as the case may be. If the packages are heavy, but strong and compact, mules are employed; but if liable to breakage, or of inconvenient shape for passing carelessly along narrow lanes, and up and down steep acclivities, men are considered the most trust-worthy and careful animals. The hire of a mule is, according to the burthen and measure, from four to six dollars; and of a porter, from six dollars upwards, by the same rule. On the arrival of goods at Panamà, they are immediately lodged in the custom-house; and if for exportation, pay a duty of two per cent. If for home consumption, it is according to the article. And to all these expenses must be added about four dollars on the bale, for extra-packing to defend from rain; making in all from 10 to 12 dollars.

In the year 1825 the following vessels were entered at the Port of Chagres, exclusive of men-of-war, packets, and small coasters: viz. one large ship from Bordeaux; seven brigs from Havre de Grace; twenty-one schooners, chiefly British, from the West Indian islands; six schooners from the United States; and three from Carthagena. In 1828, these numbers had diminished to eleven schooners from the West Indies; four from Carthagena; and five from the United States, without any French whatever, and it is not believed that the trade has since much revived.

In the same years the entries at Panamà were respectively seventeen and twenty-four vessels; the lesser number, on the one side, corresponding to the greater number on the other, and *vice versa*. This would seem to indicate that the whole transit might, with patience and perseverance, be considerably improved, but the spirit of commercial enterprise, which in 1825 was too rash, has ever since been altogether as desponding. The improvement is chiefly exemplified in the trade with Guayaquil, which exhibits only one entry in 1825, and no fewer than eleven in 1828. The passage from Callao to Panamà takes usually from nine to twelve days. From Panamà to Chagres it occupies three; and from Chagres to Jamaica six to ten.

Finances.—The following is a statement of the receipts and expenditure of the government of Panamà in 1827.

RECEIPTS.

EXPENSES.

Expenses of the Hospital	18,406	7
Expenses in Stamping Paper	1,302	1
Aid to other Treasuries	5,936	1
Returned to Money Lenders	83,582	2
Paid by Custom House	277	4
Paid by the Collector of Tobacco	1,129	0
Paid to Invalids or Retired Officers	3,589	5
Noveno Decimales	1,720	2
Salaries of Public Officers	7,514	0
Ditto of Treasury	4,546	6
Pay to the Military	84,792	1
Expenses of Ecclesiastical Meetings	1,225	3
General Expenses	10,475	2
General Expenses of Fortifications	1,756	2
Artillery, or Arsenal Vacantes	2,616	3
Monte Pio, or Fund for Relieving Government Officers	2,583	2
Lepers' Hospital	410	2
Repay to Persons depositing Money	79	9
Sundries	2,283	2
Ditto, Credito del Gobro. Espanol	617	0
	3,788	2

Mr. Lloyd adds, 'Under the above head of loans, only 22,800 dollars were paid in cash; the rest was 11,789 for rations in meat for the troops—2653 in documents to persons holding official situations on account of the scarcity of money—27,773 advanced by merchants to the military, for which they received documents on the Custom-house.'

The following account of the income in 1812, may be advantageously subjoined, as showing what has been, for the present at least, lost, and altered, by the separation from Spain.

INCOME OF PANAMA FOR THE YEAR 1812.

Sealed Paper	2,240	Ecclesiastical Duties in other Cantons	420
Ecclesiastical Duties	5,332	Pope's Dispensation Bulls	27,000
From Alcaldes	79	Ditto, distributed	5,000
Custom House	145,000	Other Bulls for Sins	7,000
Quinto, or Duty on Gold and Pearls	778	Ditto	1,500
Tribute by the Indians	300	Duty on Tobacco	2,000
From other Treasuries	19,858	Ditto on Cards	2,600
From Hospital	536	Turnpikes	1,300
For Invalids (Monte Pio)	2,623	Voluntary Contributions	110,000
Siezures	860	Received to assist in carrying on the War	31,000
Reintegros	175,180	Customs on Goods in Cruces	4,000
Borrowed	42,500	Military Monte Pio, or Fund	4,500
Duties on Aquadiente	21,200	Ministerial ditto	1,400
Powder	2	Received for clothing of Mi- litia	5,000
Deposits	101,000	Monte Pio for Surgeons	251
New Duty on Aquadiente de Lima (from Peru)	2,800	Extraordinary Contributions	9,000
Fines	1,200		
Received from Spain for Forti- fications	10,000		
Ecclesiastical Duties in other Cantons	2,782		
			746,241

Manners, Education, Occupation, &c.—The upper classes in the Isthmus are of the common stock, but by no means so far advanced in civilization as their neighbours. The white people, and particularly the women, are noted for a tinge of European complexion, which can hardly be reconciled with their geographical position. They are the most superstitious, and the least freed from the shackles of their religion, of all the Columbians; and thus, although their communication with the English is considerable, and they admire and profess to imitate our domestic habits, we are not in general favourites with them.

The women are retired, and even unsocial, scarcely ever leaving their houses but to mass, or to follow in a religious procession. They are also altogether uninformed, and rear their children in the worst manner, allowing them to associate indiscriminately with the lowest negroes of their own age. Hence, though there is a college at Panamà, the head of which is a most excellent well-informed clergyman, and considerable pains are here taken to instruct the youth in mathematics, natural philosophy, and other, the higher, sciences,—yet the formation of their character, and the instilment of honourable principle, and right feeling in them, are neglected; and billiards, cockpits, gambling, and smoking in low company, are their exclusive amusements. It is not probable,

therefore, that the worst features of the male character here will be speedily corrected, which are, indifference to the pleasures of home, and a propensity to low debauch abroad. Their best quality is great liberality to the poor, and especially to the aged and infirm; of whom almost every family of consequence has several regular pensioners, who come every Saturday to receive an accustomed and liberal alms.

A considerable turn for commerce is observable among the inhabitants of Panamà; and from the highest to the lowest, each keeps a shop or tienda. The lower classes also pursue different handicrafts; but are rude in all, excepting in goldsmith's work, for one branch of which, viz. plating gold chains, they are famous. The field for this branch of art, however, as for every other connected with luxury, is now much curtailed. At one time, no family in Panamà ate off any thing but plate,—almost every domestic utensil was of the same material,—and the women wore a profusion of chains, pearls, and other ornaments. But these have now, for the most part, disappeared, and even much of the church plate has progressively passed through the melting-pot to the old world, although, on peculiar gala-days, an attempt is still made by some individuals to reappear in the former style.

The dress of the women is, on these occasions, peculiarly splendid, being what is called 'Cartagenea,' thus described by Mr. Lloyd. 'A loose shift of beautiful cambric, with innumerable and immense frills richly worked with lace, is, with a petticoat of the same, fastened at the waist by several massive, chased, gold buttons. Round the neck are several gold chains, with pearl rosettes, crosses, and rows of pearls; the ear-rings are of the shape of a telegraph, and reach nearly to the shoulders; the fingers are covered with rings; and various combs, studded with rows of pearls, cased in gold, are placed, together with a massive gold bodkin, to great advantage in beautiful hair, plaited in two tails down the back. The feet are barely introduced into a little slipper, turned up very much at the toes, and also richly ornamented. The whole effect is elegant and becoming.'

The pearls thus tastefully disposed round the person of a fair Panamenian are, it is well known, procured among the islands off the coast, by diving. The occupation is very laborious, and success most uncertain; but the pursuit is a favourite one, and the divers are very expert. They generally proceed in companies of several canoos together, each containing six or seven men, who dive in succession armed with a sharp knife, rather for the purpose of detaching the oysters from the rocks to which they adhere, than for defence against danger. Before descending they repeatedly cross themselves, and generally bring up four oysters, two under

the arm, and two in the hand. The usual time of stopping under water is from fifty seconds to two and a half minutes. Much has been said of the danger of these fisheries, both from the shark, and another enemy called the Mantá, which crushes its victim. ‘ But the shark is ever a coward ; and so little of a match for an expert diver with a knife, that an accident is hardly known.’

Many individuals in Panamà have made it their occupation for years to collect, in this way, pearls for the formation of necklaces : some of which, after continued changing and labour, are certainly of the most perfect symmetry. But their price is not reckoned according to the marketable value of such articles, but according to the trouble which may have been bestowed in collecting and assorting them ; and thus they are often dearer on the spot than in London. Some time ago a diving-bell was sent out by an English company for pearl fishing, but it did not answer their expectation, and several causes may be assigned for its failure. The first and primary was the enormous expense at which the concern was fitted out and supported ; after which it was found, that the oysters did not lie in banks, as is generally the case, but were dispersed under rocks and in uneven ground : and that a peculiar ground-swell and motion under the water, with a very strong current, made it almost impossible to place the bell in safety, and to advantage.

IX.—*Memoir on the Voyage of his Majesty's ship Blonde in the Black Sea.* By the Rev. Edmund Goodenough, D.D., F.R.S., &c. Read 28th March, 1831.

Of all the waters of the deep which have been penetrated by the enterprise of British sailors, there are none so little known to us, by actual observation, as the Black Sea. Although it appears, by a memorial presented to the Turkish government on the 1st of September, 1799, by Mr. John Spencer Smith, that both in the times of Queen Elizabeth and of Charles II.* British merchantmen were permitted to navigate the Euxine throughout its whole extent, for the purposes of commerce ; yet the most copious naval histories of our country do not afford a single instance of a ship of war, antecedent to the short excursion made by his Majesty's ship Blonde, in November, 1829, having been permitted to navigate the Euxine ; and even the multifarious record of the valuable old Purchas affords us only two instances (which were pointed out to me by my friend Mr. Barrow) of Englishmen having traversed any

* See Appendix to Dr. Clarke's Travels.